

Volume 1: Principles,
Background, and Application

Simplified Signs

A Manual Sign-Communication
System for Special Populations



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9. Application and Use of the Simplified Sign System with Persons with Disabilities

In the last several decades, both clinical and research evidence have shown that individuals who cannot effectively use or understand speech (including persons with autism spectrum disorder, an intellectual disability, cerebral palsy, or aphasia) may be able to produce or understand visual-motor symbols such as manual signs. However, to obtain the best results for these persons, it is not sufficient to merely start using signs with them. One must adopt good practices concerning which signs to teach first and which ones later, what teaching methods to use, which supporting activities to introduce, and how to incorporate sign learning as part of a larger intervention program for an individual (Dark, Brownlie, & Bloomberg, 2019; Grove & McDougall, 1991; Sundberg & Partington, 1998). The attitudes and responses to the use of signs by people in the surrounding environment also can have either a positive or a negative impact on an individual's progress (Bowles & Frizelle, 2016; Brereton, 2008; Budiyanto et al., 2018; Glacken et al., 2019; Rombouts, Maes, & Zink, 2017a, 2017b, 2017c, 2018a, 2018b; Sheehy & Duffy, 2009; Singh et al., 2017; Spratt & Florian, 2015).

In this chapter, considerable attention is devoted to providing teachers and caregivers with information on how to be supportive communication partners and how to coach an individual who has language difficulties into successful communicative behavior. Although the focus of this chapter is on teaching and using Simplified Signs, many of the approaches that are recommended are applicable to other intervention strategies as well. Also addressed are many common questions that may arise from the teachers, caregivers, and family members who are

primarily involved in deciding what type of communication methods to employ with a non-speaking individual.

Approaches to Teaching the Simplified Sign System

It is important to realize that signs are not a personalized communication prosthesis that, once they are adapted to the main or target user, will automatically result in improvement. Communication is a process of interaction between more than one person: the main user, the main user's communication partners, and the wider environment in which the main user lives and interacts. Each of these components will need to be a part of the learning process. Slightly different teaching and learning goals can be defined for each of them.

Component	Motivations	Goals
Main user	Experience that learning and using signs can be helpful.	Produce and recognize signs in daily situations. Produce and recognize signs in a teaching situation.
Communication partners	Understand that signs can be a help and support for the main user. Understand that the efficacy of signs will increase if they are used receptively and expressively by all communication partners.	Produce and recognize signs in daily situations. Produce and recognize signs in a teaching situation. Encourage the use of signs.
People in the wider environment	Understand that non-speaking or minimally verbal people need augmentative and alternative means such as signs to communicate effectively.	Respect the use of signs.

In essence, there are several steps that must be mastered for the successful implementation of a sign intervention strategy. The main user and his or her communication partners will need to learn how to form individual signs and learn the meanings associated with those signs. Each of these people will also need to learn how to combine signs and how the combining of signs affects their meanings. In addition, the main user and his or her communication partners will need to learn how to produce their signs effectively in a range of communicative contexts (Beukelman & Mirenda, 2013; Dark et al., 2019; Launonen, 2019b).

Main User

The most significant person in the learning process, of course, is the non-speaking or minimally verbal individual who will make use of the Simplified Sign System as a principal form of communication or as an augmentative technique to existing communicative methods. It would be a misperception, however, to assume that he or she is the sole reason why we need Simplified Signs. Communication is not a one-way process, and a limitation in communication is always a shared condition: this includes every person in the user's environment who wants to or needs to communicate with him or her.

There are four general ways to teach signs to the main user of the system: through general exposure, an incidental or milieu approach, games and group sessions, and explicit instruction or specific training sessions (often discrete trial training). We recommend using all of these strategies to attain maximum results. The first method of teaching signs is through general exposure. If everyone in the individual's environment utilizes Simplified Signs while interacting, the main user may acquire signs spontaneously (Valentino & Shillingsburg, 2011). In fact, if a communication partner makes a sign at a moment that the user is especially attentive because the item of discussion is of particular interest to him or her, he or she may learn and remember that sign. This phenomenon is similar to the way typically developing hearing children acquire most spoken words and how typically developing deaf and hearing children of deaf parents acquire signs. It is extremely important that the user's communication partners sign whenever he or she is around. In this way, the partners model signing and help turn

Simplified Signs into the standard mode of communication throughout the environment. This, in turn, provides many more opportunities for social interaction and the learning of signs.

Many persons with severe developmental disabilities learn signs best within the course of their daily living situations. This incidental or milieu teaching technique may be used when a non-speaking individual's interest is raised by food, a toy, or another item (Carr & Felce, 2007; Launonen, 1996, 1998, 2003, 2019b; Light & McNaughton, 2015; Mancil, 2009; Schepis et al., 1982; Wright et al., 2013). In such a situation, the learner may be especially motivated to learn and use a sign. For example, a caregiver signs EAT before a meal and asks the individual to repeat that sign. If he or she succeeds in making this sign or at least attempts to make the sign, then he or she is rewarded with the food item. If the learner fails to sign, the caregiver may repeat the sign once or twice. If the learner still does not produce the sign, the communication partner may take the hands of the individual and carefully and respectfully “mold” them into the sign (Clibbens, Powell, & Atkinson, 2002). The caregiver then repeats the sign and the meal starts. In this context, the sign serves as a reference to an upcoming or current event. The sign learner is more likely to store the sign as an internal symbol that represents the concept *eat* than if the sign is presented out of context. This very useful strategy should be implemented often.

Another method of teaching signs to persons with disabilities is by turning the task into a game or by using signs in conjunction with music, dance, storytelling, poetry, puppets, and other creative expressions (Parkhouse & Smith, 2019; Sutton-Spence & Kaneko, 2016). The more fun that a potential user has in learning signs, the more likely that he or she will learn and use those signs (Dark et al., 2019; Grove, 2019a). This approach does not have to be limited to the main user — including other children in the classroom will make learning signs an enjoyable experience for everyone (Grove & Colville, 1990; Grove et al., 2019; Mistry & Barnes, 2013). Furthermore, teaching signs to a main user's peers in group sessions promotes and encourages the use of signs not just in the classroom setting, but also outside of the classroom (Bowles & Frizelle, 2016; Glacken et al., 2019; Mackenzie, Cologon, & Fenech, 2016; Woll & Barnett, 1998). Since many persons with disabilities tend to communicate mostly with the adults in their lives (e.g., teachers,

caregivers, therapists, and parents), including children of the same age in signing sessions gives the main user more motivation and opportunities to engage with same-age peers, thereby offering more chances to develop healthy social relationships (Grove & McDougall, 1991; Mackenzie et al., 2016; Parkhouse & Smith, 2019).

The last approach is to organize regular teaching sessions in which the person is taught the association between a sign and its meaning. These sessions typically are highly structured and focus on the learning of targeted behaviors or signs. The way these sessions are organized will depend on the cognitive level of the user, as well as his or her interest level. In many instances, he or she will first need to learn to look at the person teaching the signs. Once this visual contact has been established, the teacher shows how a particular sign is formed. If the user fails to produce the sign after it has been demonstrated several times, the teacher may wish to mold the user's hand(s) into the correct handshape(s) and guide his or her hand(s) through the appropriate sign movement (for precautions about using the molding technique, see Dunn, 1982; Grove et al., 2019; and Herman, Shield, & Morgan, 2019). Once the user has learned to produce the correct sign formation, the teacher's motor control can be faded. To maintain the child's attention and involvement through these sign-learning sessions, the teacher may wish to reward the user's attempts at producing signs. For many such sign learners, these sessions can be held in a classroom or speech-language therapist's office. The therapist, parent, teacher, or caregiver may also work with real objects, pictures, or posters to teach desired concepts, depending on what works best for the sign learner (Dark et al., 2019). This is the most structured type of teaching session. For some sign-learning individuals, the specific sign-training sessions may need to take place outside of their usual environment. This move to a special environment may be done to increase the learners' attention and to avoid distractions. If teaching takes place outside of a main user's customary surroundings, then an effort will need to be made to ensure that any signs learned in the special setting transfer back and are incorporated into an individual's regular environment.

Finally, the earlier in a child's development that a system of signed communication is enacted, the greater the possibility of long-term progress and of positive results (Branson & Demchak, 2009; Broberg

et al., 2012; Clibbens, 2001; Creedon, 1973; Goodwyn & Acredolo, 1998; Guralnick, 2017; Launonen, 1996, 1998, 2003, 2019a, 2019b; Launonen & Grove, 2003; Mahoney et al., 2006; Millar et al., 2006). In fact, delaying a sign intervention program (or other AAC techniques) may leave a child without the ability to communicate his or her needs in an effective manner. Such a deficit in communication skills may lead the child to develop behavioral control issues and may also result in social withdrawal or isolation from same-age peers. The introduction of signs and/or other communicative techniques provides a young child with a means of becoming involved in the world and experiencing a degree of control over his or her environment. Typically, this also results in declines in emotional outbursts, frustration levels, and other negative behaviors associated with minimally verbal or non-speaking individuals. Even when introduced at a later age, however, signs can provide these and other benefits. Parents, teachers, and other caregivers should therefore be open to using signs with non-speaking persons of any age.

Communication Partners

Teachers, caregivers, family members, friends, and other persons who regularly interact with the main user should become adept at signing and should employ Simplified Signs whenever that individual is present, especially when speaking with him or her. We recommend that a user's communication partners organize their own learning and practice sessions. These sessions can be fun; learning signs is an engaging way to broaden one's language skills (Dolly & Noble, 2018; Spragale & Micucci, 1990). Furthermore, being able to witness a person with serious communication difficulties make progress in learning signs and in improving the quality of his or her life can be especially rewarding. Providing direct and consistent training and guidance to communication partners on how they might best facilitate their non-speaking loved one's use of nonverbal communication methods should also be seriously considered (Broberg et al., 2012; Cologon & Mevawalla, 2018; Glacken et al., 2019; Grove & McDougall, 1991; Guralnick, 2017; Kent-Walsh et al., 2015; Mahoney et al., 2006; Mellon, 2001; Rautakoski, 2011; Rombouts et al., 2017a, 2017b, 2017c, 2018a, 2018b, 2019; Singh et al., 2017; Wooderson, Cuskelly, & Meyer, 2014).

Many non-speaking children and adults reside at home and need to interact frequently with family members. If parents, siblings, and other family members learn to sign, then the main user will have many more opportunities to learn signs and these signs likely will generalize to new situations (Dodd & Gorey, 2014; Launonen, 2019b; Smith, Ronski, & Sevcik, 2013). For these reasons, enlisting the active participation of family members is an important step in establishing a successful sign-communication program. There are, however, hurdles that need to be overcome before a supportive family sign-learning environment can be fully implemented. One hurdle is that few hearing parents know much about the use of signs with speech when interacting with a hearing person (Kaufman, 2003). These family members should be given ample information on the nature of signing and why signing may benefit their non-speaking family member. These benefits often include a reduction in temper tantrums or challenging behaviors, improved classroom performance, and increased self-confidence and independence (Berry, 1987; Glacken et al., 2019; Goldbart & Marshall, 2004; Grinnell, Detamore, & Lipke, 1976; Marshall & Goldbart, 2008). A second hurdle is that many parents are apprehensive about whether signed input, together with speech, might adversely affect the main user's likelihood of acquiring speech (Berry, 1987; Iacono & Cameron, 2009; Kaufman, 2003). These family members should be informed that research findings indicate that combined sign and speech input does not negatively affect spoken language development, and often facilitates it (Blischak, Lombardino, & Dyson, 2003; Dunst et al., 2011; Millar et al., 2006). This particular issue is discussed later in this chapter under "Frequently Asked Questions."

Family members may also be reluctant to sign because they are self-conscious about doing so (Kaufman, 2003). Although sign interpreting and sign language classes are more widespread than in years past, it should be recognized that signing is still an unusual activity for most hearing persons. Moreover, family members may be hesitant to become involved in implementing a sign-communication (or other augmentative and alternative communication) intervention program because of concerns about the amount of time they will need to commit (Goldbart & Marshall, 2004; Iacono & Cameron, 2009). Although the amount of time needed by parents and other family members to acquire an initial lexicon of Simplified Signs will not be large, it will not be negligible.

This issue also is discussed later in this chapter under “Frequently Asked Questions.” Considerable support and encouragement probably will need to be provided to overcome many hearing persons’ reluctance to learn and use signs.

People in the Wider Environment

Individuals who have less frequent contact with the main user should at least be informed that he or she is being taught Simplified Signs (and/or other communication techniques), why the system is being tried, and how it can help him or her to communicate more effectively. Sometimes people in the wider environment may learn a few signs to enable them to interact more successfully with the main user (Collier, McGhie-Richmond, & Self, 2010; Light & McNaughton, 2015). Such interaction through signs likely would be beneficial to the main sign learner as it may help him or her become more fully integrated into society at large.

Guidelines for Using the Simplified Sign System

In the Introduction (Chapter 1), we put forth the basic principles of the Simplified Sign System. These principles include: choosing or creating signs that are high in iconicity (maximizing the transparency or translucency of the signs); making the signs as easy to form and to remember as possible; including signs that can describe many items within a broad concept category; standardizing the formation of those signs; and focusing the lexicon on a core vocabulary that will likely prove most helpful to the main users of the system. These are important characteristics of a communication system that will be taught to target populations who have a wide range of cognitive and motor abilities, as well as difficulties in recognizing, understanding, remembering, and producing symbols. The same principles used in selecting and developing Simplified Signs should also make them easier to learn by the teachers, caregivers, friends, and family members of the target groups.

Learning to communicate, however, is more than just recognizing or producing single signs or signs in combination. Many factors play a role in whether communication is successful. For example, the speed of communication can be an issue; too fast and the person may not

understand, too slow and the person may not realize that someone is trying to communicate. A sign may also need to be repeated before it is understood. Eye contact, facial expression, and proper timing are all factors that influence whether or not a message will be successfully transmitted. The following guidelines will help caregivers and teachers establish good and consistent communication practices that likely will maximize a potential user's success with the Simplified Sign System.

Ensure a Positive Signing Environment

Signing is, at least initially, an unusual way for most hearing persons to communicate. Some people, including teachers, staff, caregivers, and the intended users, may have negative attitudes toward signing. This can have a profound impact on the willingness of individuals to learn and use signs. When introducing a program that relies on signs, try to estimate how well signs are accepted by the different persons in the main user's environment, including the non-speaking individual. It may be necessary to take steps to improve caregiver, teacher, and user perceptions and attitudes about signing (Avramidis & Norwich, 2002; Budiyanto et al., 2018; Goldbart & Marshall, 2004; Light & McNaughton, 2015; Marshall & Goldbart, 2008; Rombouts et al., 2017a; Sheehy & Duffy, 2009; Singh et al., 2017).¹

It is also important that all or nearly all of the main user's regular communication partners employ signs while interacting with him or her. The consistent and regular use of signs will help the user to learn and retain signs and encourage spontaneous sign production (Glacken et al., 2019; Grove & McDougall, 1991; Kent-Walsh et al., 2015; Launonen, 2019b; Light & McNaughton, 2015; Mackenzie et al., 2016; Rombouts et al., 2019). If only a small number of people sign, or if they sign inconsistently or only at specific times, the main learner will be less likely to use signs. This is because communication is very much influenced by what is perceived to be the norm in any given environment. Individuals with communication impairments are still affected by the languages and communication approaches utilized

¹ For a much more detailed account, we strongly urge readers to review the "Recommendations for Enhancing the Sign-Learning Environment" section in Chapter 4.

by the people around them, and they may not use signs, even if they have the ability to do so, if nobody or very few other people in their environment sign. If everyone uses signs, however, the learner will be much more likely to sign spontaneously (Bowles & Frizelle, 2016; Bryen et al., 1988; Grove & Walker, 1990; Meuris, Maes, & Zink, 2015; Mistry & Barnes, 2013; Rombouts et al., 2017b, 2017c, 2018a, 2018b; Schlosser & Sigafos, 2006; Woll & Barnett, 1998). For sign intervention programs to be optimally successful, then, non-speaking individuals should be immersed in an environment where most people consistently rely on signs to communicate and where signing is the norm (Breton, 2008; Budiyanto et al., 2018; Cologon & Mevawalla, 2018; Dolly & Noble, 2018). This does not mean that speech is excluded; we highly recommend the use of key word signing.

Establish Visual or Tactile Contact

Unlike the case for speech, non-speaking persons need to look at the signs to be able to learn them. Non-speaking persons who also are blind or severely visually impaired will need to feel a teacher's hands during sign production in order to learn those signs. How one secures the needed attention of a sign-learning individual, though, will depend to a large extent on the age and abilities of the learners themselves. For very young children, caregivers and teachers likely will need to adopt quite different sign-teaching strategies than they would for older learners. When deaf mothers of very young sign-learning children were observed interacting with them, the mothers often formed their signs within their children's existing areas of visual attention rather than in the mothers' signing space (Baker & van den Bogaerde, 1996; Clibbens et al., 2002; Dark et al., 2019; Holzrichter & Meier, 2000; Spencer & Harris, 2006). A variation of this approach was for the mothers to move the objects of their children's attention closer to the mothers' signing space. In both these approaches, the children were able to see their mothers' signs and the contextual referents at the same time. Deaf mothers of very young children also elected to make some of their signs directly on their children's bodies and to mold their children's hands into the correct sign formations (Clibbens et al., 2002; Harris et al., 1989; Pizer, Meier, & Shaw Points, 2011; Waxman & Spencer, 1997). These approaches were

effective in getting the children to attend to the signed input as well (Dark et al., 2019; Masataka, 2000; von Tetzchner & Martinsen, 2000; Wright et al., 2013).

Many other non-speaking children or older individuals will need to look at their caregivers or family members to understand any signs made by them. These sign users must therefore be encouraged to look at and preferably to make eye contact with the persons with whom they wish to communicate. Another reason to make eye contact is that a signer's facial expression is important in conveying the emotional content of a signed utterance. Some of the candidates for learning the Simplified Sign System may have fluctuating attention spans or rarely make eye contact with other people. Persons with autism spectrum disorder often fail to establish eye contact with others; these individuals, however, may be attending covertly by using their peripheral vision (Gernsbacher et al., 2008). And even though deaf children with ASD do not recognize emotions conveyed on a signer's face as well as typically developing deaf children, they still extract information conveyed on a signer's face to some extent (Denmark et al., 2014). In those cases involving persons with autism, teachers or caregivers may choose to implement a program of systematic training to increase the amount of time the user spends looking at or toward them. For example, during a teaching session, each time that the main user looks in the teacher's direction, he or she is rewarded. Regular use of rewards should increase both the number and length of attentive gazes.

Once consistent attention is established, the teacher can progress to incorporating Simplified Signs into interactions with the intended user. It should be noted, however, that establishing eye contact is not essential to the learning of signs. To see another person's signs, one must look in the general direction of that signer, but not necessarily at that signer's eyes. Indeed, for many sign learners, it may prove difficult to gaze into another person's eyes while simultaneously looking at that individual's manual sign productions and one's own sign productions (von Tetzchner & Martinsen, 2000). Finally, for non-speaking individuals with severe visual impairments, teachers and caregivers will need to rely much more on the sense of touch when teaching signs. The hands and arms of these non-speaking individuals will need to be molded into the correct sign formations, and they will need to learn to understand

their teachers' and caregivers' signs and fingerspelling by feeling them made in their hands.

Use Key Word Signing

We encourage teachers and caregivers to use Simplified Signs in conjunction with speech, a process known as simultaneous communication. Using both signs and spoken words helps to enhance and reinforce communication. Speaking and signing *every* word in a sentence, however, is both difficult and time-consuming. In a study involving fluent users of American Sign Language and English, it was found that, on average, about twice as many words were produced per second than signs (Klima & Bellugi, 1979). Conveying the content of full sentences, however, took about the same amount of time in both language modalities. This is largely because individual signs often convey more information than individual words. Yet if one were to produce a sign to accompany each spoken word in a sentence, the greater time required for individual sign production might noticeably increase the time needed for effective communication (and might increase it to a point where comprehension is negatively affected).

The technique of key word signing seeks to overcome the difficulties in simultaneous communication by limiting the number of signs to those that contain the most essential information — these are the *key words* (Windsor & Fristoe, 1991). In this approach, the teacher or caregiver in a country produces a sentence in the standard word order of that country's spoken language while simultaneously signing the principal information-carrying words of the sentence. The fact that only the more important words are signed makes combining speech with signs less difficult. For a sentence of six to ten words, probably only three or four signs will be used. For example, the caregiver or teacher says, "The plate is on the table" and makes the signs for PLATE, ON, and TABLE as the corresponding words are uttered (Grove, 1980). As another example, the question "Do you feel well?" would require only the signs YOU and GOOD. Facial expression, in this case raising one's eyebrows, will convey that a question is being asked, and eye contact will help make it clear that the question is directed at the user. Speech intonation and the speech itself also will help support the meaning of the sign. If necessary, one can add the sign QUESTION for clarification.

When deciding which words to sign, be sure to think about the underlying meaning of what is said; this will help determine which words to sign and also which signs to use. Remember that signs in our Simplified Sign System have relatively flexible meanings and are usable across a range of contexts. Whereas the teacher or caregiver is expected to integrate speech with signs, the non-speaking user is not; rather, he or she is first expected to imitate signs and then encouraged to initiate communication through those signs (Grove & Walker, 1990).

There are a number of reasons for teachers and caregivers to use a key word signing approach. Many words in a spoken utterance primarily play a structural role by making the utterance grammatical; providing signs for such words probably would not enhance signed communication. Additionally, because many signs take longer to form than their spoken word equivalents, speaking and signing the key words at the same time helps to slow down communication (Loncke et al., 2012). Speech often is more understandable if its rate of production is slowed down slightly. This may be a benefit for individuals who have difficulty processing rapid speech input; slowing down sign communication may also benefit persons who need a longer visual presentation time to understand the signed input. Third, a teacher or caregiver using key word signing often is interacting in an environment where there are individuals with widely varying abilities. Although hearing a full sentence may not directly benefit some non-speaking individuals, it may be of assistance to others. A fourth reason for the key word approach is that the exposure to a spoken language may facilitate the non-speaking individual's development of spoken language processing skills (Loncke et al., 2006). Furthermore, if a sign learner misses some of the information contained in one modality (e.g., speech), he or she may be able to understand the information provided by the other modality (e.g., signs). Signs can have a positive effect on speech recognition similar to what a yellow marker does on written text: it highlights what is essential to understanding the message. Finally, the teacher or caregiver may feel more comfortable using spoken language and supplementing speech with signs rather than relying solely on signs for communication.

Sign Correctly but Accept a User's Imperfect Signs

It is important for teachers or caregivers to produce signs accurately and consistently so that the main user has a better chance of learning them. Caregivers and teachers need to monitor themselves to make sure that the signs are made as they are described in the lexicon (see Chapter 11, Volume 2). This way, a main or target user is not confused by wide variations in how a sign is produced. This need for consistency in caregivers' and teachers' sign formation has been underlined recently through the concerns expressed about the difficulties individuals with ASD have in processing input that is not relatively stable in form (Hellendoorn et al., 2015). One should strive to make all communications as clear as possible, and limiting the variation within a particular sign is part of this strategy. Related to this strategy of standardization of sign formation is the commitment to teaching and using the particular Simplified Sign listed in the lexicon under a certain concept, even if other common gestures or signs may be just as clear and understandable. This ensures that everyone who interacts with the main user learns and uses the same sign, thereby increasing the chances that the sign will be incorporated into that individual's sign vocabulary. Again, the goal is for the main user to not be confused by exposure to different signs that represent the same concept. An exception to this principle is if the non-speaking individual has already learned a sign or gesture from another source and uses it successfully to represent that concept. In this case, make sure everyone uses the previously learned sign or gesture instead of the Simplified Sign. If, however, this "known" sign is produced inconsistently or with great difficulty, one may wish to introduce the Simplified Sign version and determine whether it is produced with greater ease and is retained better than the other sign.

Although teachers or caregivers may learn signs relatively quickly, it is important to understand that it may take much longer for the main or target users to learn them (Grove et al., 2019). The target users may not be accustomed to processing visual linguistic information or they may never have learned how to successfully communicate symbolically until they are taught Simplified Signs. Using signs means a dramatic change in the strategies non-speaking or minimally verbal persons employ to interact with their environments. This learning process may

take a substantial amount of time because it requires users to learn how to associate symbols (signs) with objects, activities, or concepts, then store and later retrieve those same symbols (signs).

Some individuals may need to learn to replace their current form of communication with the use of signs. Sometimes, this current form of “communication” may be a problem or challenging behavior (Wetherby, 1986). For example, a child with ASD may have learned to get what he wants by looking at something and throwing a tantrum. From the viewpoint of the child, this behavior is extremely effective: the attention of a teacher or a caregiver is obtained and subsequently the desired object is provided. The use of signs will be a much less disruptive form of communication; however, the child will need to learn that using signs is as effective as or more effective than the problem behavior that had worked up until that point (Hetzroni & Roth, 2003). Often this will require a systematic approach by the teachers or caregivers to promote the use of signs and to discourage tantrums. Once a sign is taught for a certain concept, the child should be rewarded for using that sign so that the likelihood of it being used again will increase.

For those individuals with aphasia who communicated effectively before their loss of speech, one should still expect gradual progress in learning signs. Even with existing linguistic ability or lengthy experience with spoken language, it will take time for an individual to become accustomed to processing or “reading” another person’s signs (their handshapes, locations, and movements) as well as producing them (Doherty, 1985). This point is applicable to anyone learning the system who has not already been exposed to a sign language or sign system. In addition to the time needed to become accustomed to using signs, time is required for a person to learn how to accurately produce a *specific* sign. Many persons who will benefit from the Simplified Sign System have motor difficulties that will directly affect their ability to form particular signs. Caregivers should expect that signs produced by individuals in the early stages of intervention may only approximate how the signs are actually made. Much like an infant who is learning to utter words for the first time, but who leaves out syllables or substitutes easier-to-make sounds for more difficult ones, signs typically are not produced perfectly on the first try. Users may initially leave out part of a sign, produce it in the wrong location, form it with a different handshape, or make incorrect movements.

Caregivers or teachers may wish to adopt a strategy of shaping or molding the user's imperfect signs into the correct forms. As the individual becomes more familiar and comfortable with signing, his or her signs should become more accurate. Depending on the specific cognitive and psychomotor abilities of the learner, however, certain signs may never be correctly produced. Even if a person can only make approximations of certain signs, caregivers and teachers should be supportive. It is important that the user feel that his or her communication is recognized and rewarded, and most of all, appreciated and encouraged (Grove et al., 2019). Keep in mind that signing may still be much easier for a person than speaking, and his or her signs may be more understandable than his or her speech (Grove, 1990). Lastly, some individuals may prefer to produce many Simplified Signs with both of their hands. That is, in addition to a signer using his or her dominant hand to perform the handshape and movement of a one-handed sign, he or she may mirror that handshape and movement with the non-dominant hand (Doherty, 1985; Grove et al., 2019; McEwen & Lloyd, 1990; Meier et al., 2008). Transforming a one-handed sign into a two-handed symmetrical sign usually should not be considered an error. Many of the signs in our system can be made in this manner without any confusion or change in meaning. Caregivers and teachers should, of course, continue to use the standard form of each sign. It is also possible that as a particular signer gains or develops more control over his or her motor abilities, he or she will learn to inhibit the extraneous movement of the non-dominant hand.

Reward the User for Progress

Eventually, successful communication will be enough of a reward in and of itself to use the Simplified Sign System. A user's experience of being understood by his or her communication partners is one of the strongest incentives to keep using signs. In the beginning, however, he may not be able to see the relationship between producing a sign and getting a specific response. Some form of age-appropriate encouragement will typically increase the chances that the user will intentionally sign to express what he or she wants. Rewards can take several forms: a desired food, overt cheering, a hug, verbal

reinforcement or encouragement, or some kind of gift or token. The right amount of an item or an activity serving as a reward is enough to increase the likelihood that the sign being taught will be produced again, but not so much that the sign learner no longer desires the reward. Caregivers and teachers should rely on their understanding of the particular characteristics of a potential sign user when choosing what type and amount of a reward to employ, because different rewards will be effective with different individuals. These rewards may be faded out as the need for them decreases.

Use Facial Expression

Facial expression is a powerful tool in helping to clarify or support the meaning of a signed communication. In fact, our testing of Simplified Signs revealed that signs accompanied by an emphatic facial expression often were more easily recalled than those that did not incorporate facial expression (see Chapter 8). Facial expression serves to underscore a signed or spoken communication and helps to make the message more understandable and more memorable. A sign may not be understood at all if not accompanied by the proper facial expression, or worse, if it is accompanied by the wrong one. For example, a frown while making the sign for HAPPY would be confusing; on the other hand, a smile would be appropriate and would help to clarify the meaning of that sign. We suggest appropriate facial expressions in the written descriptions of some of the signs in our Simplified Sign lexicon. Use of facial expression also may help keep the sign learner's attention. However, this emphasis on appropriate facial expression is more of a concern in the signing of teachers and caregivers. Indeed, a small number of non-speaking individuals have difficulty generating different facial expressions and should not be expected to produce them.

Use Environmental Cues or Contextual Information

Make communication multimodal: maximize the use of environmental cues to make the message as transparent and as clear as possible and to reduce any ambiguity in meaning. Teachers are encouraged to produce signs in conjunction with a desired activity or object. For instance,

pick up or point to a book when using the sign BOOK. However, one should be careful not to mismatch cues; it would be confusing to introduce the sign for SLEEP while an individual is taking a walk or eating. Instead, one should introduce the sign when the context is right: at bedtime or naptime. Pictures, posters, drawings, toys, and other objects in the environment can serve as contextual cues to both the caregiver's communication efforts and the child's communication efforts as well. Using environmental cues to decode linguistic input is a skill learned in early childhood (Bezuidenhout & Sroda, 1998; Loukusa et al., 2017). This receptive language skill can also be used proactively by children to support their expressive language skills (i.e., their linguistic output) in multimodal ways through the use of pointing at people or objects, gesturing, signing, pantomiming actions, vocalizing, and facial expressions (Borghetti et al., 2014; Grove, 2019b; Hill, Reichart, & Korhonen, 2014; Kusters et al., 2017; Launonen & Grove, 2019; Morgan, 2014; Parkhouse & Smith, 2019). When at all possible, point to or pick up the object being discussed. Continue to make use of objects or activities occurring in the environment until an individual user has learned and employed a sign multiple times in a variety of contexts. A caregiver may then consider gradually fading out the use of the objects.

Use the Sign for the Underlying Concept

Try to be sensitive to the underlying meaning or concept behind a spoken word and use the sign for that concept instead of trying to find a sign for a specific word. For example, the sentence "Stay where you are" would be conveyed by the sign HALT. HALT signals to the user to interrupt his or her movement, which is the underlying meaning of the spoken sentence. Notice that there is no separate sign for the word *stay* in the lexicon. Instead, we tried to find or create signs that are usable in various contexts. The spoken sentence "I will ask the receptionist" can be signed with QUESTION and MAN or WOMAN. In this instance, the sign for MAN or WOMAN is a suitable substitute for the word *receptionist*. Alternatively, one can point directly to the person if he or she is visible. If a specific concept is used often, however, one may wish to find or create a sign for it (we offer suggestions on how to do this later in the chapter).

Adapt the Size, Rate, and Frequency of Signing

For very young children, persons with visual impairments, individuals with autism, or older persons with memory impairments, it may be important to provide a longer presentation time for signs to be imitated correctly and learned. Indeed, deaf mothers teaching their children sign language often make modifications to their signing, including making the sign larger, slowing down the rate of signing or increasing the duration of the sign to clarify its movement, using fewer signs in an utterance, and repeating the sign multiple times (Pizer et al., 2011). This last strategy of repetition may be specifically designed to increase the likelihood that a child will attempt to produce the sign (Woll, Kyle, & Ackerman, 1988). These strategies may also be useful when teaching signs to siblings, caregivers, family members, and adult communication partners who have not already been exposed to a sign language.

Viewing someone else producing a sign and then successfully imitating that sign often requires a person to perform a spatial transformation that reverses the sign's movement (Shield, 2010; Shield & Meier, 2018; see also Grove et al., 2019). Persons with autism have particular difficulty with visual perspective-taking and may produce errors with lateral movements, inward-outward movements, and palm orientations (Edwards, 2014; Hamilton, Brindley, & Frith, 2009; Shield, Cooley, & Meier, 2017; Shield & Meier, 2012, 2018). One way to avoid many of these errors is for the sign teacher to physically reorient his or her body so that he or she is positioned next to the signer and facing in the same direction (Dunn, 1982; Shield, 2010). This allows individuals who have trouble with spatial transformations to perform the signs using an easier and more direct matching strategy. Typically, as a sign learner gains experience in both viewing and producing signs, his or her visuospatial skills will improve to the point where this teaching strategy is no longer necessary. Children with autism, however, may continue to make visuospatial errors even after years of signing experience (Shield & Meier, 2018).

Frequently Asked Questions

Which Signs Should Be Taught First?

Once one chooses to implement the Simplified Sign System, one needs to decide which signs a potential user should try to learn first. Many educators are inspired by the first words (e.g., *ball, doggie, up, mommy, daddy*) of typically developing young children. These first words are often those that refer to the most important objects, actions, and persons in the young child's environment. In studies of vocabulary use in preschool children, as few as fifty words comprised half or more of their total number of words (Banajee, Dicarlo, & Stricklin, 2003; Beukelman, Jones, & Rowan, 1989; Burroughs, 1957; Deckers et al., 2017; Fallon, Light, & Paige, 2001; Fried-Oken & More, 1992; Trembath, Balandin, & Togher, 2007). While beginning with signs that have a strong interest value is a good principle, we must consider that the world of individuals who need Simplified Signs frequently is quite different from the world of typically developing young children. Therefore, the content of the first lexicon of a Simplified Sign System user may be substantially different (von Tetzchner & Martinsen, 2000).

The first step in developing a teaching plan is to start with an assessment of the principal learner's interests, needs, desires, and current successes and challenges in communication (Beukelman & Mirenda, 2013; Light et al., 1998; Reichle, York, & Sigafoos, 1991; Vandereet et al., 2010, 2011). During this assessment, the caregiver or teacher should include a list of situations in which communication is or is not successful. The selection of the first signs to be taught should emphasize situations in which teachers and caregivers report a real need for a sign and in which there is sufficient indication that the principal learner or user will experience an improvement in communication by using signs. Indeed, because the rate of sign or manual gesture learning often is quite slow for many individuals, therapeutic interventions should concentrate on teaching those signs or gestures that promise to have a direct benefit or practical relevance to the principal learner (Daumüller & Goldenberg, 2010). As the use of signs progresses and as his or her communication needs grow, other concepts can be added to the learner's sign vocabulary (Dark et al., 2019; Grove & Walker, 1990; Hockema & Smith, 2009; Walker,

Mitha, & Riddington, 2019). In addition, it is critically important that assessments of the communication skills and needs of adults and older persons be tailored to their vocabulary needs by including more mature topics of conversation and age-appropriate concerns (Grove & Woll, 2017).

Other signs that teachers and caregivers should consider including in their teaching plans are signs that may help the main user understand what events are going to occur in his or her environment and what people want him or her to do (von Tetzchner & Martinsen, 2000). Often, individuals with severe language impairments, such as many persons with autism spectrum disorder, become anxious and upset when they are unable to understand what is happening in their environment and what others expect of them (Frith, 1989).

In addition to teaching signs that meet a communication need, teach signs for objects, actions, or persons that are highly important or interesting to the main user. These signs are likely to generate strong motivation and an underlying basis for learning signs; for example, a person who enjoys sports may want to know how to ask for the basketball he or she cannot find. In fact, the communication partner may have deliberately hidden the ball to create the need for asking. Try to avoid teaching signs that are of little interest or value to the user. Overburdening a person with signs that seem irrelevant could possibly diminish the user's ability to remember more helpful and necessary signs.

Although the particular objects or actions that are especially motivating, interesting, or reinforcing will vary from person to person, certain guidelines should be followed when picking an initial sign lexicon (Sundberg & Partington, 1998). One recommendation is to avoid more complex concepts such as *please*, *like*, and *help* in favor of more distinct or clear-cut concepts such as *food*, *cat*, and *book*. The latter concepts can be identified or demonstrated relatively easily, whereas the former are more difficult to demonstrate and involve some degree of social understanding. This is not to say that the former concepts should not be taught, but rather that they should not be the focus of the very first sign-teaching efforts.

A second recommendation when selecting the initial signs to teach is to avoid signs that resemble each other formationally (Sundberg &

Partington, 1998). For example, the signs EAT and DRINK both involve the signer's hand arcing up to the lips. To avoid confusion and the potential blending of sign formations by the learner, it would be unwise for the initial vocabulary to include signs that are produced in the same location or that too closely resemble each other. Once the individual has acquired one of the signs and is paying attention to the different sign formational parameters (i.e., handshape, location, and movement), then introduce the other, formationally similar, sign.² Also, because many teachers and caregivers utter the word equivalent of a sign while making the sign, it would be better for the learner if words that rhyme or sound similar were avoided in the initial lexicon.

A third guideline is to avoid signs that are conceptually similar (Doherty, 1985; Stremel-Campbell, Cantrell, & Halle, 1977). Confusion may arise for the learner when the meaning of one sign is subsumed by that of another sign, as in the signs BERRIES and FOOD (listed as EAT in our lexicon). Misunderstandings also may occur if two signs are related in meaning and are taught at the same time, as would be the case for SHIRT and COAT. Again, once the learner has acquired one of the signs and understands its meaning, then the related sign may be introduced.

Finally, select signs that vary in their motivating or reinforcing aspects (Sundberg & Partington, 1998). For example, if the signs being taught or introduced in a specific session are all foods or all forms of physical play, then the user's motivation to learn likely will decrease when he or she is no longer hungry or if he or she becomes physically tired. To avoid such potential satiation, consider varying the types or categories of signs being taught in a particular set or session and spread signing throughout the day's naturally occurring activities.

2 We should note that there is also a potential advantage to teaching formationally similar signs. That is, if a sign learner acquires the ability to form a certain sign, then he or she probably has the capacity to acquire formationally similar signs. But to avoid possible confusion in the learning process, we would not recommend that two or more formationally similar signs be taught in the same early teaching session.

What If the Simplified Sign System Does Not Provide a Sign for a Needed Concept?

The lexicon of the Simplified Sign System is designed to be used in the majority of daily interactions between caregivers and target users; it is not, however, meant to convey every single concept or represent every possible object with which a user may come into contact. For an item for which there is no specific sign in the Simplified Sign System, caregivers or users may wish to simply point to the object (if it is visible). If the object is of considerable importance to a user or is a common topic of conversation, however, a caregiver may feel the need to add that concept to the person's sign vocabulary. If this is the case, we recommend the following steps:

1. Make sure that none of the signs in the current system can be used. Remember that signs are not direct translations of words, but rather represent the underlying concepts. For example, suppose the user really enjoys playing with dolls. Instead of creating a separate sign for the concept *dollhouse*, try just using the sign HOUSE. The more widely individual signs are used, the more powerful the system is.
2. If a single existing sign is not specific enough (for example, if one is often confused about which meaning is being indicated), consider combining two signs from the lexicon. For example, *dollhouse* could be conveyed by combining the signs DOLL and HOUSE or possibly SMALL and HOUSE. It should be noted, however, that combining signs in this way requires greater amounts of cognitive and motor skills and may not be helpful for non-speaking individuals whose sign communications are usually limited to single signs. Only those individuals who have learned how to combine signs to convey more complex utterances will be able to benefit from this option.
3. If the above strategies do not work, create a new sign. One may find that outlining the general shape of an object is an effective approach to creating a sign for a needed object. Also, observe the user in the context for which the sign is needed. One's observations may uncover movements or actions that are typical to that concept and which in turn can be used to

create the needed sign for an action or activity. For example, one may use an imitation of a machine's turning wheels or another visually obvious section of it to represent a specific machine. Regardless, make the sign as iconic or representative as possible — its meaning should be readily apparent. Use easily formed handshapes (see Appendix B for options) and reduce multiple movements to a single movement. Also, try to have the sign make contact with the torso, head, arms, or hands, especially if it is a one-handed sign (Grove, 1990; Lloyd & Doherty, 1983). Once the sign is as iconic and as easy to form as possible, test the sign with other caregivers. This will help determine whether another person can accurately guess a sign's meaning and remember how to make it. If the sign is not sufficiently memorable or is too confusing, try again. It may take multiple attempts to come up with a sign that is easily understood, remembered, and produced. Finally, once a sign has been created and tested, make sure that both the main user and all communication partners know the sign.

What If a Potential User Already Knows Some Signs, such as ASL Signs?

There is nothing magical about Simplified Signs. Their power is in the fact that they are easy to learn, remember, recognize, and produce. If a potential user already knows some signs from a different source and is able to produce them accurately, then there is no need for him or her to learn the corresponding signs in our system. The other signs can co-exist with any new signs taught from the Simplified Sign System. If, however, the person has difficulty forming a particular sign from another sign language or system, it may be worthwhile teaching and using the corresponding Simplified Sign instead.

When Are Name Signs Necessary and How Should They Be Developed?

Individuals already using a sign language or a sign system to communicate may already have signs to represent themselves, their close

friends or family members, and others in the environment with whom they come into frequent contact. For those individuals who are just now starting to use a sign language or sign system such as the Simplified Sign System, some time will need to be spent creating signs to represent the important persons in a user's life. Who ranks as important is a judgment call, but fundamentally, these are the persons with whom the user has frequent, meaningful interactions. Not all of these individuals, however, will need to have a name sign.

An individual's mother and father do not need name signs because the user can refer to them with the signs MOTHER and FATHER; stepparents may, on the other hand, require name signs. The signs GRANDMOTHER and GRANDFATHER can be used for grandparents, although one may wish to distinguish between one's maternal and paternal grandparents or among various great-grandparents. Brothers or sisters may need name signs if an individual has more than one or a person can refer to them as *brother* or *sister*. Any other family members who interact frequently with the main user may need name signs, as do the individual's friends. Other people in the environment can usually be referred to by their occupation, such as TEACHER (listed under TEACH in our lexicon), DOCTOR, etc.

One source of information about the creation of name signs is the way that they emerge in the Deaf community. When Deaf parents in the United States select a name sign for their children, they typically use handshapes from the manual alphabet for the initial letter of the children's first or, less frequently, last names. These handshapes are made in the area in front of the signer's torso where fingerspelling usually occurs or on certain areas of the signer's arms, hands, head, or torso (Supalla, 1990). Because the handshapes of the manual alphabet do not resemble particular characteristics of the persons being named, these name signs often are considered arbitrary name signs. Most children who grow up deaf, however, have hearing parents. These children often do not receive their name signs from their parents, who usually have limited or no signing skills and who are not part of the Deaf community. Rather, these children typically receive name signs from their peers at educational institutions for deaf students (Meadow, 1977). These name signs often are based on particularly striking or identifying aspects of an individual's physical appearance, behavior, personality, or interests. For

example, a name sign might reflect a person's prominent scar or extra-thick glasses. Because these signs are directly tied to characteristics of those persons being named, these name signs are often called descriptive (Supalla, 1990).

In recent years, a number of hearing persons with some background in signing often have chosen to create name signs for themselves by combining the arbitrary and descriptive approaches. In this combined approach, a sign that refers to a prominent physical, emotional, or other characteristic of an individual typically is modified by incorporating the manual alphabet handshape for the initial letter of that person's first name.³ For example, Alan may be a cheerful and happy fellow; his name sign may modify the sign for HAPPY by changing the handshape to an "A" for Alan. Catherine may be such a hard worker that her friends refer to her with the sign for WORK, but modify the handshape to a "C" for Catherine. Other name signs may focus on a person's favorite activities or on physical characteristics such as long or short hair, height, weight, or facial features. If one opts to use this approach to create a name sign, focus first on that person's most salient characteristic and then modify the sign for that characteristic to represent the first letter of the individual's name or nickname.⁴ If the letter's handshape is too difficult for the user to form, consider modifying it or simply leaving it out. Also, this strategy of modifying a sign to refer to a person may be too confusing and complicated for certain non-speaking individuals to understand. In this case, one may need to create name signs from that person's existing gestural repertoire, taking care not to overlap with existing sign vocabulary.

If a decision is made to develop a name sign for an individual, several types of sign forms should be avoided (Mindess, 1990). First, a name sign for a specific person should not be the same as that of another person in the group or immediate environment. Second, a name sign should not be identical to a commonly used sign in the sign language or system being employed. These two recommendations to avoid duplication of

3 The reaction of members of the American Deaf community to this hearing persons' approach — modifying an ASL sign with the handshape for the initial letter of a person's first name — has been mixed at best (Mindess, 1990).

4 See Appendix B for the list of handshapes used in our lexicon; see a sign language dictionary for the full manual alphabet of the sign language of your country.

sign forms should greatly lessen the chance of confusion over to whom or what one is referring. A third suggestion is that a name sign should not look like a gesture that is used in swearing or that has strong sexual connotations in that culture. Finally, name signs should not be difficult to form or located in places that are hard to see.

Why Is the Use of Manual Communication with Non-Speaking Hearing Individuals Relatively Recent?

Although this is a frequently asked question, it is based on an inaccurate impression. Signs were successfully taught to a limited number of hearing individuals with an intellectual disability at least as early as the 1840s (Bonvillian & Miller, 1995). Furthermore, there are reports of the use of the manual alphabet by hearing individuals who had lost their ability to speak because of medical illnesses, such as throat cancer, that go back hundreds of years (Lane, 1984). What has changed relatively recently is that efforts to use signs with non-speaking persons are more widespread.

Unfortunately, for many years most educators and linguists believed that language could only be expressed in speech or writing. Signs were considered inferior and unfit to carry linguistic structure in the same way as speech. In short, sign languages were not considered languages at all, but just a collection of readily understood gestures. Although these opinions were not based on scientific findings, the use of ASL and other sign languages in educational settings frequently was discouraged. These views had wide-ranging negative effects, especially for Deaf people, as instruction in sign language often was prohibited and all sign communication discouraged (see Chapter 3 for more information). Many hearing, but non-speaking, people who might have benefited from the use of signs also suffered as a consequence.

Once the sign languages of Deaf persons gained value and recognition within linguistic and educational circles, their use with other populations gained more widespread acceptance. However, many non-speaking individuals with an intellectual disability, autism spectrum disorder, cerebral palsy, or aphasia still had limited success with the acquisition of signs from full and genuine sign languages. This is probably attributable to these individuals' specific motor and cognitive impairments, as well

as the formational complexity and abstract (or arbitrary) nature of many signs in those sign languages.

In response to these difficulties, several sign systems, among them the Simplified Sign System, have used the sign languages of Deaf persons as starting points in developing tailored communication systems for hearing, but non-speaking, persons. These systems adapt signs for use with various populations whose members are unable to successfully learn and use a full and genuine sign language. These creative efforts rely on the findings of a number of studies of individuals with specific disabilities that have only recently become available. In the past two decades, much has been learned about the acquisition of sign language formational parameters, as well as the motor difficulties of non-speaking persons. These advances have in turn had a positive effect on the use of sign languages or sign-communication systems.

Why Do Simplified Signs Work?

There are a number of reasons why the use of Simplified Signs may help individuals with communication limitations. Some of these reasons are particular to signs in the Simplified Sign System and others to sign languages more generally. First, many Simplified Signs are highly iconic: they visually resemble what they represent. For example, SMILE is conveyed by tracing a smile on one's face. Few words in spoken languages are onomatopoeic and thus sound like what they stand for. Because they often visually resemble their referents, Simplified Signs often are easier to understand and remember than spoken words (and many signs from full sign languages). Second, the handshapes and movements of Simplified Signs make them easier to produce than many of the manual signs from the full and genuine sign languages of Deaf people. Simplified Signs may therefore require less motor ability and fine motor coordination to produce accurately than signs in other languages or systems.

Third, signing depends on the use of one's arms, hands, fingers, body, and facial expression. Unlike the parts of the body involved in speech production (tongue, vocal cords, etc.), which are primarily internal, the body parts used in signing are located on the periphery of the anatomical system. This makes it easier for signs to be imitated

as an individual can see himself or herself make the signs. A caregiver or teacher also can physically mold a user's hands into the correct handshape, place the hand in the proper location, and then trace the movement of the sign. A similar degree of control and guidance is not possible in the formation of spoken words. A fourth possible reason is that teachers may considerably slow down their rates of sign production, or even come to full stops, to help learners grasp correct sign formation. It is probably much easier to manipulate production rates in the visual and gestural modalities than in the auditory mode. Fifth, many individuals may simply be better at processing visual information than auditory information. Indeed, human memory retention for auditory events often is inferior to that for visual and tactile material (Bigelow & Poremba, 2014). A sixth reason is that because the specific neural mechanisms for signs in memory processes are not identical to those for speech (Rönnerberg, Rudner, & Ingvar, 2004), then it is possible that the neural architecture involved in memory for signs might be more intact than that for spoken language, making signs a preferred modality in some instances. Finally, signs, when used with speech, may accentuate the message and make it easier to understand than speech alone.

The use of manual signs likely will be helpful to different persons for different reasons. A person who is not able to coordinate the mouth, lip, and tongue movements necessary for speaking may still have the motor abilities needed to form signs. In this case, signs may be easier because they do not require the same movements or types of fine motor coordination as speech. Even if the signs are imperfectly formed, they may still be more understandable to the user's communication partners than his or her speech. On the other hand, a child with a severe developmental speech delay may benefit from the use of signs because he or she cannot process sounds as well as he or she can process visual information.

What If One Arm or Hand of a Potential User Is Fully or Partially Paralyzed (or Unable to Be Used)?

Many Simplified Signs require the use of only one hand and arm. It does not matter whether this is the left hand or the right hand. Two-handed symmetrical signs (those signs whose handshapes and movements are

mirror images of each other) can be made either with both hands or with the single hand that is available — the result is still understandable. For two-handed asymmetrical signs (those signs where one hand serves as a stationary base and the other hand performs the action of the sign), the signer uses the available hand to perform the main action of the sign. The stationary hand is either deleted or the sign is performed on top of an existing surface; for example, a table, a desk, one's chest, or the paralyzed arm itself. For those individuals with substantial bilateral impairment of their arms, it will likely be necessary to utilize an augmentative and/or alternative communication system other than manual signs until rehabilitation efforts have resulted in sufficient motor control of at least one arm.

Will Signing Keep My Child or Loved One from Learning to Speak or Regaining Speech Skills?

This is probably the most persistent myth or misconception about signs and sign learning (see the “Dispelling Myths” section in Chapter 5). It is based on the belief that signs and speech are incompatible — that our mind can either process one or the other, but not both — and that once a person chooses one of these modalities, the other will deteriorate or decline. For a long time, many clinicians and professional educators were convinced that manual signing would hinder the development of speech and speech skills. They assumed that the mind had limitations in processing language in more than one mode and that if a person learned signs then she would not be able to learn or understand spoken language.

There is no evidence to support this belief; on the contrary, many clinical reports show that signs and speech positively reinforce each other (Barrera et al., 1980; Blischak et al., 2003; Branson & Demchak, 2009; Carr et al., 1984; DeThorne et al., 2009; Dunst et al., 2011; Fouts, 1997; Fulwiler & Fouts, 1976; Goodwyn & Acredolo, 1998; Grove & Walker, 1990; Kouri, 1989; Launonen, 1996, 1998; Launonen & Grove, 2003; Layton & Savino, 1990; Millar et al., 2006; Pattison & Robertson, 2016; Remington & Clarke, 1983; Schaeffer et al., 1977, 1980; Sheehy & Duffy, 2009; Silverman, 1995; Singh et al., 2017; Vandereet et al., 2011). Furthermore, hearing children of Deaf parents are often reared by parents who use a sign language as

their principal means of communication, yet these children are still able to acquire fluency in the spoken language of the larger hearing society in which they live. These children who acquire fluency in both a signed language and a spoken language are known as bimodal bilinguals.

In addition, using a manual sign requires understanding a mental symbol, much as using a spoken word does. Through signing, a person can acquire and develop symbolic skills that may then be used to learn and acquire a spoken language. Typically developing infants who are not yet able to speak can still understand symbols; using signs thus gives the child practice in communication and symbol use (Acredolo & Goodwyn, 1990). Not only does signing give children a chance to practice using language, but it even appears to enhance acquisition of spoken vocabulary items (Daniels, 2001). Sign-communication training with hearing, but non-speaking, persons also may help facilitate the processing of speech in the brains of these individuals and subsequently help them gain speech skills (Fouts, 1997). For all of these reasons, teachers, caregivers, and family members should not fear that learning signs will prevent a user from acquiring speech. One should keep in mind, however, that some users may never gain the ability to produce intelligible speech.

How Long Will It Take Me to Become Skilled at Using the Simplified Sign System?

A frequently expressed concern of teachers, staff, and caregivers is that learning to sign will require a substantial time commitment. While acquiring proficiency in a full or genuine sign language would probably require at least several years of study and practice (Kemp, 1998), this is unlikely to occur in the learning of Simplified Signs. First, the signs in the Simplified Sign System were selected or developed for their ease of production, learning, and recall. Overall, the handshapes and movements used in the formation of signs in the Simplified Sign System are easier to produce than the ones used in the formation of signs in a full sign language. This means that our system is not as formationally complex or as difficult as full sign languages. This should make Simplified Signs relatively easier to learn and produce. Also, many of the signs in our system are iconic or resemble the concepts for which they stand; this

should make them easier to learn and remember than less iconic signs. Third, the Simplified Sign System is not a language and thus does not have its own grammatical or syntactical rules that need to be mastered. Instead, we recommend that teachers and caregivers combine Simplified Signs with their speech in an approach called key word signing. In this technique, teachers and caregivers continue to speak full sentences as they always have (in the grammatically correct sentence order of their spoken language) but they also sign the important words of the sentence as those words are uttered.

Another reason why teachers and caregivers should not be particularly worried about the time commitment involved in acquiring proficiency in Simplified Signs is that initially they will not need to know all of the signs or be particularly adept at signing them. Instead, only a small group of signs needs to be learned at any particular time. At the beginning of a sign-communication intervention program, teachers and caregivers will need to agree on which signs will be the first ones taught to the main user. The teachers and caregivers then learn how those particular signs are formed; once they are comfortable using this first group of signs, they teach those signs to the main user. Once the main user has achieved some command of these signs (which may take a while), teachers and caregivers can meet to decide which signs will be taught in the next group. This process is then repeated periodically as the main user's sign vocabulary continues to expand. Although the time commitment on the part of the teachers and caregivers to learning a relatively small number of Simplified Signs each week or month is unlikely to be a very substantial one, it should be recognized that some time will need to be set aside on a regular basis for deciding which signs will be taught and for learning how they are formed. Finally, it should be noted that this investment in time and effort to learning Simplified Signs probably will be small in comparison with the improved communication efficacy that is achieved.

Will It Be Difficult to Learn to Combine Gestures or Signs with Spoken Words?

Nearly all individuals who speak accompany their speech with gestures (McNeill, 1992). For example, a speaker might accompany the sentence

“She went up the hill, looked around, and then ran back down” with three gestures: an upward moving gesture, a pantomimic look-around gesture, and a downward rushing gesture. Most speakers are perfectly comfortable combining speech and gestures in this way. In fact, when speakers want to make sure that they get their point across, they will often make much greater use of hand, body, and facial gestures (Kendon, 2014). When giving directions, for instance, a person will often point in the proper direction and use other gestures to convey additional information about the trip. By using gestures and pantomimic signs, people can express their need to use a telephone, drive a car, find a restroom, or convey feelings of illness. Such non-spoken communication takes place in many forms and in very different arenas of interaction (Remland, 2004). Gestures can even help two people communicate who do not speak the same language. Furthermore, there is a growing recognition among researchers and educators that when speech is accompanied by gestures, communication is significantly enhanced (Hostetter, 2011; Launonen & Grove, 2019). In fact, the opposite is also true — when forbidden from using gestures along with their speech, people find it much harder to access or convey complicated information (Pine, Bird, & Kirk, 2007). Given the highly iconic nature of many Simplified Signs, caregivers and teachers should not find it too difficult to incorporate them into their spoken language interactions with potential users of the system.

How Does One Know If a Person Is Making Reasonable Progress in the Use of the Simplified Sign System? What Can Be Expected?

As discussed previously in the “Guidelines for Using the Simplified Sign System” section, it takes time for an individual to become accustomed to using signs or to learning specific signs. This is especially true for persons with motor impairments and other disabilities (Dennis et al., 1982; Dunn, 1982; Grove et al., 2019). Progress during this period will most likely be slow and gradual and may be contingent upon the sign learner’s degree of fine motor control. To better assess a person’s progress, it is helpful to prepare a communication plan, maintain a record of signs learned and progress made in communicating with

signs, and document any secondary effects that may result from the introduction of signs.

Preparing a communication plan. Decide which signs should be taught, when they should be taught, how they will be taught, who will teach them, and where the signs will be used outside of the teaching/learning situations (this should be in as many places as conveniently possible). Also, set goals for sign recognition and spontaneous production by the user, as well as appropriate goals for all communication partners. Allow enough time for everyone to become accustomed to the Simplified Sign System. Remember that the communication plan must be part of a general intervention strategy. Communication is not a separate component in the development of a person; it is integral to that person's identity and development. The fact that communication is part of the general intervention plan invites all of the individual's communication partners (e.g., parents, counselors, educators, workshop supervisors, occupational therapists, speech-language pathologists, friends) to assume responsibility. Make sure that these people know and use signs with the main learner and have acquired a style and technique of encouraging the production of signs. When assessing progress, verify that the use of Simplified Signs will not be just a separate component of the intervention plan by ensuring the commitment and involvement of all communication partners to using signs.

Maintaining a record. Keep records of which signs are taught, when they are understood by the main user, when they are produced or made by him or her for the first time, how often they are employed, and the errors made when forming them. When evaluating progress, keep a record of all the signs taught and note which ones are understood and which ones are produced. Typically, individuals with disabilities will understand more signs than they are able to correctly produce themselves.

It is also important to determine whether the main user employs the signs he or she has learned in new settings he or she encounters and with additional persons with whom he or she interacts. If generalization of sign learning has not occurred, then specific procedures designed to facilitate such generalization will need to be added to the sign intervention program. These procedures include varying the settings where sign learning takes place, varying the learner's communication

partners, and changing the conditions of instruction and materials used.⁵ In general, a user will understand a sign before he or she begins to produce it spontaneously. In some instances, a user will never produce a certain sign, even though he or she understands it. Such a person may rely heavily on producing a few “favorite” signs to convey a wide range of information in diverse situations. If this person shows any interest in or need for another sign, then make an effort to teach him or her a new one. Regardless, it is important to compare your records periodically with the goals set in the communication plan and determine whether previous expectations were realistic or whether they were instead underestimating the main user’s potential. Make adjustments as necessary.

Documenting secondary effects. Keep an eye out for changes in the main user’s behavior that may be an indirect result of learning Simplified Signs. Often the learning and use of a sign-communication system reduces problem or challenging behaviors (tantrums, soiling incidents, etc.) because the person is more successful in conveying his or her needs or desires and consequently feels less frustration. The main user may also show more interest in the surrounding environment, initiate more interactions, or ask more questions. When assessing progress, see if there have been any non-linguistic or collateral effects in the user’s behavior and interactions with others.

Concluding Remarks

In writing the present chapter, we were thinking primarily of how to teach Simplified Signs to children with cognitive and motor disabilities. Indeed, we most sincerely hope that if the above guidelines and recommendations are followed, then many of these youngsters will show greatly increased communication skills. While we believe that many of our suggested procedures will work well with quite diverse populations, we recognize that they are not for everyone. Older individuals who have lost their hearing, for example, are quite different

5 For additional information on facilitating sign generalization, see the “Teaching Generalization and Spontaneous Communication Skills” section in Chapter 5 and the “Recommendations for Enhancing the Sign-Learning Environment” section in Chapter 4.

in their learning abilities from young children with autism spectrum disorder. It would therefore be a mistake to insist on a single training or teaching approach for all non-speaking or minimally verbal individuals. In addition, the characteristics of individual sign learners may change over time, necessitating modifications in the teaching strategies or techniques that are employed. This may be the case because as children grow older, their interests and skill levels often change. Furthermore, some individuals may gain or regain speech skills or show improved motor control of their arms and hands. As a consequence, teachers, caregivers, and family members may need to modify our recommended procedures for teaching and using the Simplified Sign System to meet these individuals' particular needs. Regardless, we wish everyone who uses Simplified Signs the best possible outcome in their lives and communicative interactions, and we look forward to your helpful feedback.